∑ DANEMATHICS
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GRADE 9 · WHOLE NUMBERS
Direct & Indirect Proportion

EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
30	45 minutes	3

Name: _____ Class: _____

Date: _____

MARK ____ / 30

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 If 5 books cost R120, then 8 books cost ... (1)

A) R192 **B)** R123
C) R960 **D)** R75

1.2 In DIRECT proportion, when one quantity doubles the other ... (1)

A) squares **B)** stays the same
C) halves **D)** doubles

1.3 If 4 taps fill a tank in 6 hours, then 8 taps take ... (1)

A) 12 hours **B)** 3 hours
C) 6 hours **D)** 2 hours

1.4 Which pair is INVERSELY proportional? (1)

A) speed and time for a fixed distance **B)** distance and time at a fixed speed
C) mass and number of identical bricks **D)** cost and number of items

1.5 y is directly proportional to x, and $y = 12$ when $x = 3$. When $x = 7$, $y = \ldots$ (1)

A) 21 **B)** 16
C) 28 **D)** 84

1.6 y is inversely proportional to x, and $y = 10$ when $x = 2$. When $x = 5$, $y = \ldots$ (1)

A) 50 **B)** 4
C) 13 **D)** 25

1.7 The graph of a DIRECT proportion is ... (1)

A) a horizontal line
B) a curve through the origin
C) a straight line through the ORIGIN
D) a straight line cutting the y-axis above 0

1.8 It takes 12 hours for ONE person to clean a house. Three people, working at the same rate, take ... (1)

A) 12 hours
B) 36 hours
C) 4 hours
D) 9 hours

1.9 Petrol costs R$23{,}50$ per litre. The cost of $40\ \ell$ is ... (1)

A) R400
B) R$1{,}70$
C) R$63{,}50$
D) R940

1.10 If $y = kx$ describes a direct proportion, then k is ... (1)

A) the constant RATIO $y \div x$
B) the value of y when $x = 0$
C) the difference $y - x$
D) always 1

ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1

1.1	A	B	C	D
1.2	A	B	C	D
1.3	A	B	C	D
1.4	A	B	C	D
1.5	A	B	C	D
1.6	A	B	C	D
1.7	A	B	C	D
1.8	A	B	C	D
1.9	A	B	C	D
1.10	A	B	C	D

QUESTION 2 [9 MARKS]

It takes 8 builders 6 days to build a wall. All the builders work at the same rate.

2.1 State, with a reason, whether the number of builders and the number of days are in DIRECT or INDIRECT proportion. (3)

2.2 Calculate how long the same wall would take if only 3 builders were available. **(4)**

2.3 Explain why the answer to the previous question would be wrong if the builders worked at different rates. **(2)**

QUESTION 3 [11 MARKS]

Answer the following.

3.1 5 kg of rice costs R72,50. Calculate the cost of 8 kg of the same rice, using the unitary method. **(4)**

3.2 A car travelling at 90 km/h covers a journey in 4 hours. How long would the same journey take at 120 km/h? **(4)**

3.3 For the journey above, state which quantity stayed CONSTANT, and explain how you can tell the proportion is indirect. **(3)**

TOTAL: 30 marks

This question paper consists of 3 questions.

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